



Dr. 'Buck' Sisson

*Specialist in subsurface
hydraulic-property measurement
instrumentation*

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Education: Dr. James B. "Buck" Sisson received his Ph.D. in agronomy, from New Mexico State University, Las Cruces, New Mexico, in 1980 and his M.S. and B.S. from Montana State University, Bozeman, Mont., in agronomy and agriculture business, respectively.

Work experience: Prior to his INL experience, Dr. Sisson served on the graduate faculty at Kansas State University, Manhattan, Kansas, where he taught water movement and chemical transport in soil systems as well as advanced soil physics and mechanics of erosion. Prior to serving at K-State, he was employed on the Hanford Reservation as a vadose zone hydrologist researching radionuclide transport associated with tank

leaks and crib discharges. Previously, Buck and Kay (his wife) served in Peace Corps in Iran as soil scientists.

Professional endeavors: Dr. Sisson's specialty has been the invention of water potential, water content and hydraulic-property measurement instrumentation for quantifying mass transfer of water and solutes at great depths below land surface. He also designs field experiments to characterize sites for contaminant transport and water movement potential in conjunction with modeling studies, initiates thermal infrared studies to estimate the vertical connectivity of fracture apertures, and supports commercial transfer of intellectual property to outside firms and serves as product champion for vadose zone instruments developed at the INL for applications throughout the DOE Laboratory system. "Looking back over the 14 years of service to the Lab, the things that stand out most vividly in my mind have to do with unleashing creativity on specific problems," Sisson recalls. "Creativity in many forms, not just the tensiometer in it's many configurations, but to have all the resources of the Lab, the Model Shop in the IRC being most important, applied to a problem was a splendid thing to behold. Having experienced the creative flow from my close associates at the Lab will forever remain in my mind."

Patents:

U.S. Patent No. 5,520,248 – Method and Apparatus for Determining the Hydraulic Conductivity of Earthen Material

U.S. Patent No. 5,644,947 – Tensiometer and Method of Determining Soil Moisture Potential in Below-grade Earthen Soil

U.S. Patent No. 5,758,538 – Tensiometer and Method of Determining Soil Moisture Potential in Belowgrade Earthen Soil

U.S. Patent No. 5,915,476 – Monitoring Well

U.S. Patent No. 5,969,242 – Isobaric Groundwater Well

U.S. Patent No. 6,263,726 – Sidewall Tensiometer and Method of Determining Soil Moisture in Belowgrade Earthen Soil

U.S. Patent No. 6,289,725 – Field Matric Potential Sensor

U.S. Patent No. 6,308,563 – Vadose Zone Isobaric Well

U.S. Patent No. 6,405,588 – Monitoring Well

U.S. Patent No. 6,539,780 – Self-compensating Tensiometer and Method

Licensing information

For information on licensing INL technologies such as those developed by Dr. Sission, contact the Lead Account Executive for Environmental:

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